Remarks

Claims 1-22 are pending in the application.

Claims 7-9 and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. For reasons set forth below, Applicants submit that independent claims 1 and 10 from which claims 7-9 and 16-18 depend, are patentable under 35 U.S.C. 102. Therefore, these claims 7-9 and 16-18 are also patentable in their present dependent form.

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Eijk et al. (US Patent No. 6,771,908, hereinafter "Eijk").

Claims 1-6, 10-15, and 19-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Davis et al. (US Patent No. 6,798,991, hereinafter "Davis").

Each of the various rejections and objections are overcome by amendments that are made to the specification, drawing, and/or claims, as well as, or in the alternative, by various arguments that are presented.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly include the limitations of those claims on which it formerly depended or whether an independent claim has been rewriting to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

Objections

Claims 7-9 and 6-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. For reasons set forth below, Applicant submits that independent claims 1 and 10 from which claims 7-9 and 16-18 depend, are patentable under 35 U.S.C. 102. Therefore, these claims 7-9 and 16-18 are also patentable in their present dependent form.

Rejection Under 35 U.S.C. 112, Second Paragraph

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses the rejection.

The Office Action states that: 'As to claims 1, 10, and 19, it is not clear what is meant by "...in which the optical network units are connected together in a series, ...". Figure 3 shows optical network units (ONU 1.1, ONU 1.2, ONU 1.3, and ONU 1.4) that are separately connected to a protection switch 20, not in series.'

Applicant submits that optical network units 1.1, 1.2, 1.3 and 1.4 are indeed connected in series within a ring topology. Fig. 3 illustrates the position of the protection

switch 20 relative to the optical line terminal 2 and the ONUs, without explicitly showing the connection paths inside the switch 20. (One illustrative embodiment showing the connections inside switch 20 is shown in Fig. 4.) However, the specification discloses that the ONUs in Fig. 3 are connected in series within a ring topology (e.g., p.5, lines 28-33), and further discloses the serial connection between ONU 1.1 and ONU 1.2 via fiber 14.1, switch 20, and fiber 13.2 on p.6, lines 4-14:

> "... Thus, optical line terminal 2 is connected to first optical network unit 1.1 via downstream connection 11 through ring protection switch 20 and via a first local downstream optical fiber connection 13.1. Optical network unit 1.1 is connected to optical network unit 1.2, which is the next in the series, by a first local upstream optical fiber connection 14.1, ring protection switch 20, and a second local downstream optical fiber connection 13.2, and so on. The last optical network unit 1.4 in the series is connected to optical line terminal 2 via a last local upstream optical fiber connection 14.4, ring protection switch 20, and upstream optical fiber connection 12. Thus, none of the optical network units 1.1 to 1.4 is connected directly either to optical line terminal 2 or to any other optical network unit, but only via the ring protection switch 20." (emphasis added)

Even though the connection path between ONU 1.1 and 1.2 goes through switch 20, these ONUs are still serially connected to each other within the ring network, such that if a connecting fiber to or from ONU 1.1, e.g., fiber 14.1 or 13.2, is severed, continuity within the ring network (and connections to other ONUs) will be lost. This serial connection of ONUs in a ring topology is quite different from a tree-and-branch configuration, where each ONU is separately, or independently, connected to the OLT 12 (or to switch 20). In that situation, a broken connection to and from ONU 1.1 will not affect the connections between OLT 12 and other ONUs.

Having clarified that the ONUs in Fig. 3 are indeed connected in a series, Applicant respectfully requests that the Examiner's rejection be withdrawn.

Rejection Under 35 U.S.C. 102

Claims 19-22

Claims 19-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Eijk et al. (US Patent No. 6,771,908, hereinafter "Eijk"). Applicant respectfully traverses the rejection.

Applicant submits that, contrary to the statement in the Office Action, Eijk's network 500 disclosed in Fig. 5 and col. 7, line 56 to col. 8, line 13, is not a ring topology network. Instead, it has a tree-and-branch topology, in which the optical network terminals (ONTs) 520, 514, and others, are connected separately and independently to the optical line terminal (OLT) 502 via a splitter 508. Furthermore, Eijk does not teach or suggest that the ONTs in Fig. 5 be connected in a series to each other, either via splitter 508 or otherwise. Similarly, Eijk's network shown in Fig. 12 is not a ring topology network because the ONTs in each network (e.g., ONT 11 through ONT 1x in network PON #1), are separately and independently connected to a passive optical splitter 1308-1, which is connected to OSU1. Neither does Eijk teach or suggest that any of the ONT 11 to ONT 1x is serially connected to each other, whether through splitter 1308-1 or otherwise.

Since Eijk does not teach "a plurality of optical network units connected to an optical line terminal in a ring topology, in which the optical network units are connected together in a series", as recited in Applicants' claim 19, claim 19 is not anticipated by Eijk.

Since all of the dependent claims that depend from claim 19 include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Eijk. under 35 U.S.C. 102.

As such, the Examiner's rejection should be withdrawn.

Claims 1-6, 10-15, and 19-22

Claims 1-6, 10-15, and 19-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Davis et al. (US Patent No. 6,798,991, hereinafter "Davis"). Applicant respectfully traverses the rejection.

Specifically, Applicant submits that the Office Action is incorrect in characterizing Davis' fibers 28 and WDMs 24 as Applicants' "optical line terminal". Davis discloses terminal facilities 12 connected to each other by network connections 16 comprising communication conduits 28 such as optical fibers (see Fig. 1, col. 3, lines 7-16), and that WDMs 24 are part of the terminal facility 12 (e.g., col. 3, lines 23-26). Since the Office Action has identified Davis' terminal facilities 12 as corresponding to Applicants' optical network units (ONUs), fibers 28 can only serve as the connections

between the ONUs, but not as an optical line terminal, which is a different component from the connecting fiber. Thus, Applicant submits that the optical line terminal recited in Applicant's claims 1, 10 or 19 is not anticipated by Davis' WDMs 24 and/or fibers 28, as stated in the Office Action.

Furthermore, the Office Action characterizes Davis' switch 22a as corresponding to Applicants' protection switch. This is incorrect because Davis' switch 22a is a part of the terminal facility 12 itself (see Davis, col. 3, lines 24-26, Fig. 2), while Applicants' protection switch is not part of an ONU (or terminal facility). Even if one were to assume Davis' switch 22a as somehow analogous to Applicants' protection switch, Davis still does not disclose Applicants' claimed features of "the optical line terminal being connected to the first optical network unit in the series, the last optical network unit in the series being connected to the optical line terminal wherein the connections are via a protection switch", because Davis' switch 22a does not provide a connection between the first optical network unit (or the last optical network unit) and an optical line terminal, the latter being missing in Davis' teaching, as discussed above.

Therefore, Applicant submits that independent claims 1, 10 and 19 are not anticipated by Davis, and thus, patentable under 35 U.S.C. 102.

Since all of the dependent claims that depend from the independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Davis under 35 U.S.C. 102.

As such, the Examiner's rejection should be withdrawn.

Conclusion

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, the Examiner is invited to call Eamon Wall at (732) 530-9404 so that arrangements may be made to discuss and resolve any such issues.

Respectfully submitted,

Dated: 9/19/06

E J Wall

Eamon J. Wall
Registration No. 39,414
Attorney for Applicant(s)

PATTERSON & SHERIDAN, LLP
595 Shrewsbury Avenue, Suite 100
Shrewsbury, New Jersey 07702
Telephone: 732-530-9404
Facsimile: 732-530-9808